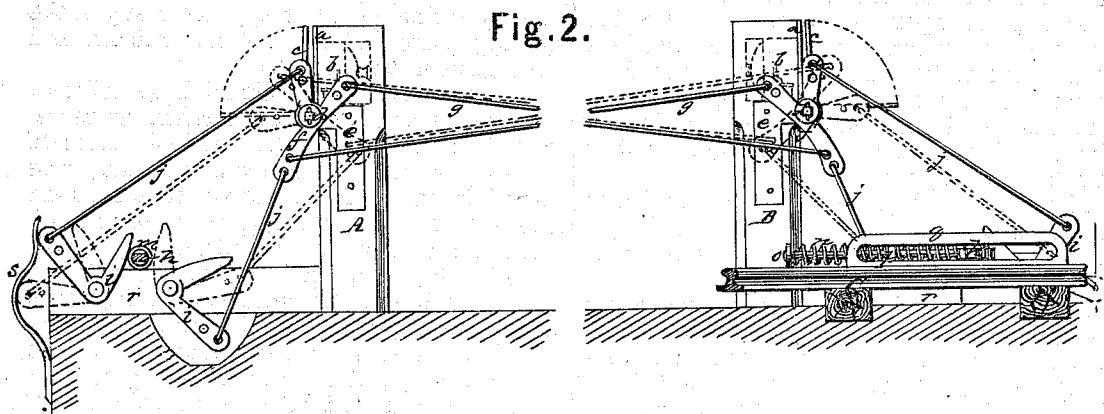
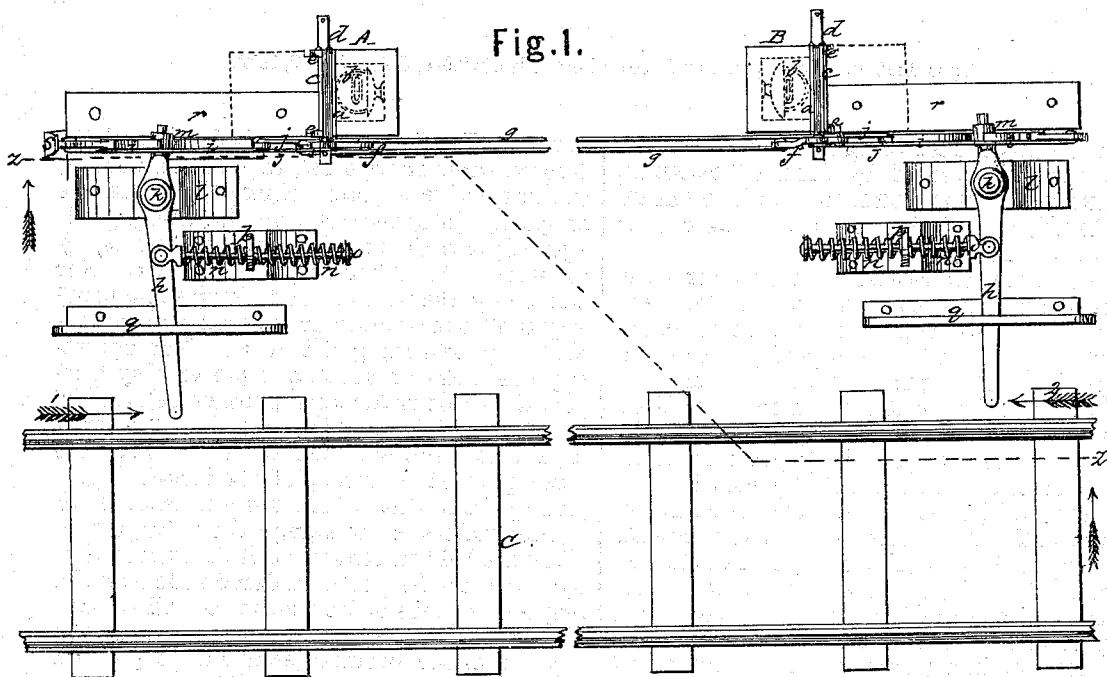


J. TOWNEND, B. CHAMBERLAIN & T. M. WALKER.

Improvement in Railway-Signals.

No. 128,679.

Patented July 2, 1872.



Witnesses.

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UNITED STATES PATENT OFFICE.

JAMES TOWNEND, BLANCHARD CHAMBERLAIN, AND THOMAS M. WALKER,
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IMPROVEMENT IN RAILWAY SIGNALS.

Specification forming part of Letters Patent No. 128,679, dated July 2, 1872.

Specification describing an Improved Railway Signal, invented by JAMES TOWNEND, BLANCHARD CHAMBERLAIN, and THOMAS M. WALKER, all of Bellefontaine, in the county of Logan and State of Ohio.

This invention relates to a superior automatic signal for use at curves, tunnels, crossings, and draw-bridges to prevent collisions from front or rear. Two signal posts are arranged at the ends of a curve or other point of danger, and present faces in opposite directions. The signaling disks are connected by elevated wires supported by posts or poles, and operated simultaneously by each train as it enters and leaves the protected section. In entering, the train sets the disks to indicate danger; in leaving, the signals are returned to normal condition, showing a clear track. At night lights are hid and displayed in the respective positions of the disks. The invention consists in a peculiar combination of devices for receiving and properly transmitting motion from the train to the disks or shutters by which the danger-signals are hid or presented, and for connecting the same.

In the accompanying drawing, Figure 1 is a plan view representing two distant portions of a single railway track, and the signaling apparatus as arranged. Fig. 2 is a vertical longitudinal section on the line *z z*, Fig. 1, showing elevations of the signal-posts, and of one entire set of apparatus.

The full lines represent the normal positions of the parts; the dotted lines indicate the positions of the parts while the danger-signals are being presented.

In carrying out our invention we employ two signal-posts, A B, having red disks *a* applied to their faces, with lamp or lantern chambers *b*, represented by dotted lines, opening there-through, and white disks or shutters *c*, hinged by transverse shafts *d*, journaled in brackets *e*, so as to be moved to cover or disclose the danger-signals. These signal-posts are arranged at the extremities of a curve or other point of danger in a railway, properly adjacent to the track C, and with faces in opposite directions, so as to be seen from trains approaching either end. Applied to the shafts *d* are bell-cranks *f*, preferably of three limbs or of Y-shape, and furnished with adjusting perfo-

rations. To these are attached the ends of crossed wires or wire cables *g*, for connecting the respective signals. These wires may be supported intermediately on the existing telegraph-poles or on special poles or posts, by staples, or in other suitable manner. For stretching the wires so as to keep them properly taut, one or more turn-buckles or "swivels" may be arranged in each. For operating the disks or shutters *c* we employ horizontal sweeps or levers *h*, pairs of bell-cranks or "fan-tail triggers" *i*, engaged by the former, and connecting rods or wires *j*. The levers *h* are pivoted by means of stud-shafts *k* projecting from sills *l*, and are furnished with friction-rollers *m* to engage the "triggers" *i*. They are held in central position by means of springs *n* applied to shouldered rods *o* on the respective sides of abutments *p*. Their free ends are so located as to be engaged by the "pilots" of the locomotives, and are supported by guides or guards *q*. The "triggers" *i* are pivoted to the sides of sills *r*, and are connected by the rods or wires *j* to the bell-cranks *f*. The parts may be retained in proper position by spring detents *s* applied to any of the moving parts. Details of construction and arrangement are variable.

The operation of the signal is as follows: The parts when in normal position, as represented in the drawing by full lines, indicate a clear track. In this position of the parts the white backs of the disks or shutters *c* are exposed. A train entering the protected track from either direction, as indicated by the arrows 1 2, Fig. 1, deflects one or the other of the levers *h*, and through its set of triggers *i* and connecting-rods or wires *j*, and bell-cranks *f*, and connecting-wires *g*, operates the disks or shutters *c*, and exposes the danger-signal on each post, as indicated by dotted lines in the drawing. In passing out in either direction the reverse action takes place, and the danger-signals are covered. Thus when, and as long as, a train is within the protected section the danger-signals are exposed so as to prevent collision from either direction; and when the train either passes through or backs out the danger-signals are covered.

The apparatus is entirely automatic, simple, and not liable to get out of order; and day

and night signals are exposed by one and the same apparatus throughout.

Claims.

The following is claimed as new:

1. The signal-posts A B, with danger-signals *a b*, and disks or shutters *c*, bell-cranks *f*, connecting-wires *g*, levers or sweeps *h*, "triggers" *i*, and connecting-rods or wires *j*, combined and operating substantially as herein shown and described, for the purpose specified.

2. In the described signaling apparatus, the shouldered rods *o*, abutments *p*, and springs *n*, in combination with the levers *h*, as and for the purpose set forth.

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